UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,290	03/13/2001	Sandra Bezemer	F7526(V)	1258

201 7590 11/05/2004

UNILEVER
PATENT DEPARTMENT
45 RIVER ROAD
EDGEWATER, NJ 07020

EXAMINER	
DIBRINO, MARIANNE NMN	
ART UNIT	**PAPER NUMBER**
1644	

DATE MAILED: 11/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/805,290	BEZEMER ET AL.	
	Examiner	Art Unit	
	DiBrino Marianne	1644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2004 and 05 August 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) *6-8,11 and 12* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,9 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/18/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's responses filed 7/21/04 and 8/5/04 are acknowledged and have been entered.

2. Applicants are required under 37 C.F.R. 1.821(d) to amend the specification to list the appropriate SEQ ID NOS for sequences disclosed in the specification (examples throughout the specification are too numerous to list).

3. Applicant's election with traverse of Group I (claims 3-5), and species of SEQ ID NO: 8 as the CDR3 species and SEQ ID NO: 19 as the antibody/fragment in Applicant's response filed 7/21/04 is acknowledged.

The basis for the traversal is that the subject matter of the claims is related, and examination of many or all of the claims should produce any art material relevant to the other claims.

Applicant's arguments have been fully considered, but are not persuasive.

It is the Examiner's position that claims 1, 2, 9 and 10 are linking claims, and as such, they will be examined with Group I. There are two criteria for a proper requirement for restriction between patentably distinct inventions:

> (1) The inventions must be independent (see MPEP § 802.01, § 806.04, § 808.01) or distinct as claimed (see MPEP § 806.05 - § 806.05(I)); and
>
> (2) There must be a serious burden on the Examiner if restriction is not required (see MPEP § 803.02 § 806.04(a) - (j), § 808.01(a) and § 808.02). Regarding undue burden, the M.P.E.P. § 803 (July 1998) states that: "For purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search".

The restriction requirement enunciated in the previous Office Action meets this criterion of serious burden and therefore establishes that serious burden is placed on the Examiner by the examination of additional Groups The inventions are distinct for reasons elaborated in paragraphs 2-7 of the previous Office Action. (1) a search for the inventions of Groups II-VI require different fields of search from the invention of Group I as enunciated in the paragraphs 2-7 of the said Office Action and by the different fields of classification enunciated in paragraph 1 of the said Office Action. (2) The Examiner has shown in paragraphs 2 and 4 of the previous Office Action that the product as claimed can be used in 4 materially different processe. (3) the antibody of Group II requires a different field of search from the antibody of Group I, since the antibody is specific for different enzymes.

The requirement is still deemed proper and is therefore made FINAL.

Accordingly, claims 6-8, 11 and 12 (non-elected Groups II-VI) are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to non-elected inventions.

Upon consideration of a search of the prior art, the search has been extended to include SEQ ID NO: 8-26.

Claims 1-5, 9 and 10 are currently being examined.

4. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: Inventors Tareilus, Bezemer and Van De Burg have printed rather than signed their names, and inventor Van De Burg has signed his name differently than appears in the typed version, i.e., Van Der Burg.

5. The disclosure is objected to because of the following informalities:

a. The use of the trademark MAXISORB has been noted in this application on page 16 at line It should be capitalized or accompanied by the ™ or ® symbol wherever it appears and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the trademarks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Each letter of the trademark must be capitalized. See MPEP 608.1(V) and Appendix 1.

b. Page 17 of the specification consists of lines 1-8 and a blank space for the remainder of the page. There are also large blank spaces on pages 27 and 32.

Appropriate corrections are required.

6. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.
(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-5, 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification does not provide adequate written description of the claimed invention. The legal standard for sufficiency of a patent's (or a specification's) written description is whether that description "reasonably conveys to the artisan that the inventor had possession at that time of the. . .claimed subject matter", Vas-Cath, Inc. V. Mahurkar, 19 USPQ2d 1111 (Fed. Cir. 1991). In the instant case, the specification does not convey to the artisan that the Applicant had possession at the time of invention of the claimed antibody that binds specifically to one or more human dietary enzymes, including to human pancreatic lipase, and fragment thereof, or functional equivalent thereof, and composition thereof, food product or pharmaceutical, recited in the instant claims, wherein the antibody or fragment thereof comprises a V_HH.

The instant claims encompass an antibody/fragment thereof/functional equivalent thereof and pharmaceutical or food composition thereof comprising an antibody/fragment thereof/functional equivalent thereof that is capable of binding specifically to one or more human dietary enzymes, including to human pancreatic lipase, wherein the antibody or fragment comprises a V_HH. There is insufficient disclosure in the specification on such an antibody/fragment/functional equivalent/composition thereof wherein the antibody or fragment comprises a V_HH.

The specification discloses that it is desirable to decrease the level of LDL and that several dietary enzymes may be involved in the hydrolysis reaction that liberates fatty acids in the GI tract to increase the adsorption of cholesterol by the epithelium (page 1). The specification discloses that other enzymes in the GI tract may be involved in undesirable physiological reactions and examples of such enzymes, referred to as human dietary enzymes, include oxidoreductases, transferases, hydrolases (e.g. lipases, proteolytic enzymes and ureases), lyases, isomerases and ligases or synthetases (page 2 at lines 1-5). The specification discloses that human pancreatic lipase (HPL) was purified, used as an immunogen to generate V_HH antibodies in a llama, and V_HH fragments that inhibited HPL were cloned, selected, screened, enriched, a portion were sequenced, and the V_HH were grouped into three classes depending upon the length of CDR3 which is the most important region for binding to the antigen (pages 15-24). The specification further discloses that a number of these were re-cloned and purified (pages 25-26). The specification discloses parallel work for production of V_HH antibodies to human gastric lipase (HGL) (pages 28-32). The specification discloses feeding the antibodies

HPL18 and HGL8 to piglets in combination with a high fat diet, and that in 2/3 animals, the antibodies inhibited fat digestion and uptake as evidenced by a reduction in blood triglyceride levels (pages 33-36).

The specification does not disclose the definition of "functional equivalent", nor does the specification disclose antibodies that are capable of binding specifically to more than one human dietary enzyme, including the antibodies exemplified in the specification. The specification does not disclose the structure of the exemplary enzymes on page 2 at lines 1-5 disclosed to be human dietary enzymes by general chemical function, and which can additionally be present in other systems of the body that are not involved in dietary enzymolysis. The specification does not disclose what amino acid sequences or combination of sequences makes a dietary enzyme "human", nor does it disclose that the exemplary enzymes on page 2 at lines 1-5 are the only human dietary enzymes encompassed by the term.

The recitation of "functional equivalent" or of "capable of binding specifically to one or more human dietary enzymes" is not an adequate written description of the genus because it does not distinguish the claimed genus from others, except by the property of being a "functional equivalent" in some way, or capable of binding specifically to one or more "human dietary enzymes" of unknown structure. It does not specifically define any of the compounds that fall within its definition. It does not define any structural features commonly possessed by members of the genus that distinguish them from others, other than that they are antibodies or fragments or functional equivalents that bind specifically to one or more proteins of undisclosed structure. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity of the members of the genus. In addition, a definition by function does not suffice to define the genus because it is only an indication of what the property the human dietary enzyme(s) has that the equivalent or the antibody or fragment binds to, and if one extends the analysis in the instant case, what the enzyme does rather than what it is, i.e., it is a dietary enzyme in the human GI tract that is involved in some undisclosed undesirable physiological reaction. See Fiers, 984 F.2d at 1169-71, 25 USPQ2d at 1605-06. It is only a definition of a useful result rather than a definition of what achieves that result. Many such species may achieve that result. The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736 F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin [e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate."). Accordingly, naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material.

The instant disclosure does not adequately describe the scope of the claimed genus, which encompasses a substantial variety of subgenera. Since the disclosure fails to provide sufficient relevant identifying characteristics, and because the genus is highly variant, one of skill in the

art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus as broadly claimed.

9. Claims 1-5, 9 and 10 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification does not disclose how to make and use the instant invention, the claimed antibody that binds specifically to one or more human dietary enzymes, including to human pancreatic lipase, and fragment thereof, or functional equivalent thereof, and composition thereof, food product or pharmaceutical, recited in the instant claims, wherein the antibody or fragment thereof comprises a V_HH.

The specification has not enabled the breadth of the claimed invention because the claims encompass an antibody/fragment thereof/functional equivalent thereof and pharmaceutical or food composition thereof that is capable of binding specifically to more than one human dietary enzyme, including to human pancreatic lipase, wherein the antibody or fragment comprises a V_HH, and wherein the fragment may or may not bind antigen. In addition, the claims encompass an antibody or fragment thereof and composition thereof that specifically binds HPL and comprises a CDR3 from the sequences recited in instant claim 1 and has undisclosed other portions, or can comprise the said CDR3, but the fragment may not contain the said CDR3 or the portions permissible and necessary for binding antigen. The state of the art is such that it is unpredictable in the absence of appropriate evidence whether the claimed antibody/fragment/functional equivalent/composition thereof wherein the antibody or fragment comprises a V_HH can be made and/or used.

The specification discloses that it is desirable to decrease the level of LDL and that several dietary enzymes may be involved in the hydrolysis reaction that liberates fatty acids in the GI tract to increase the adsorption of cholesterol the epithelium (page 1). The specification discloses that examples of such enzymes, referred to as human dietary enzymes, include oxidoreductases, transferases, hydrolases (e.g. lipases, proteolytic enzymes and ureases), lyases, isomerases and ligases or synthetases (page 2 at lines 1-5). The specification discloses that human pancreatic lipase (HPL) was purified, used as an immunogen to generate V_HH antibodies in a llama, and V_HH fragments that inhibited HPL were cloned, selected, screened, enriched, a portion were sequenced, and the V_HH were grouped into three classes depending upon the length of CDR3 which is the most important region for binding to the antigen (pages 15-24). The specification further discloses that a number of these were re-cloned and purified (pages 25-26). The specification discloses parallel work for production of V_HH antibodies to human gastric lipase (HGL) (pages 28-32). The specification discloses feeding the antibodies HPL18 and HGL8 to piglets in combination with a high fat diet, and that in 2/3 animals, the antibodies inhibited fat digestion and uptake as evidenced by a reduction in blood triglyceride levels (pages 33-36).

The specification does not disclose the definition of "functional equivalent", nor does the specification disclose antibodies that are capable of binding specifically to more than one human dietary enzyme, including the antibodies exemplified in the specification.

Evidentiary reference Lowe et al (J. Biol. Chem. 264(33): 20042-20048, 1989, IDS reference) teaches that human gastric lipase has only 4% homology with human pancreatic lipase, i.e., an example of enzymes with lipase function but with significantly different sequences.

There is no guidance in the specification as to what alterations result in a functional derivative. Because of this lack of guidance, the extended experimentation that would be required to determine which additions would be acceptable to retain functional activity, especially as the fact that the relationship between the sequence of a peptide and its tertiary structure (i.e., its activity) are not well understood and are therefore not predictable (Ngo et al. The Protein Folding Problem and Tertiary Structure Prediction, Merz & LeGrand, Birkhauser Boston, pages 491-495, 1994, entire article, especially Section 6, paragraph 1, of record), it would require undue experimentation for one of skill in the art to arrive at other amino acid sequences that would have functional activity. In other words, since it would require undue experimentation to identify amino acid sequences that have functional activity, it would require undue experimentation to make and use the corresponding sequences.

There is insufficient guidance in the specification as to how to make and/or use instant invention. Undue experimentation would be required of one skilled in the art to practice the instant invention. See In re Wands 8 USPQ2d 1400 (CAFC 1988).

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 4 and 5 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 4 is indefinite in the recitation of "selected from the group of the following sequences...or" because a proper Markush Group recites "selected from the group consisting of the following sequences...and". It is suggested that Applicant amend said claim to properly recite the Markush Group and to add SEQ ID NO for each of the sequences recited in the claim.

b. Claim 5 is indefinite in the recitation of "selected from the group having the following sequences HPL#11...or HPL#30" because the characteristics of HPL#11...or HPL#30 are not known. The use of " HPL#11...or HPL#30" as the sole means of identifying the claimed sequences renders the claim indefinite because " HPL#11...or HPL#30" are merely laboratory

designations which do not clearly define the claimed products, since different laboratories may use the same laboratory designations to define completely distinct sequences.

c. Claim 5 is indefinite in the recitation of "selected from the group having the following sequences HPL#11...or HPL#30" because a proper Markush Group recites "selected from the group consisting of the following sequences...and". It is suggested that Applicant amend said claim to properly recite the Markush Group and to add SEQ ID NO for each of the sequences recited in the claim.

d. Claims 2-5 are indefinite in the recitation of "An antibody" because the said claims should recite "The antibody".

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 1-3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 98/34630 (IDS reference) in view of Aoubala et al (J. Biol. Chem. 8: 3932-3937, 1995, IDS reference), STN Accession Number: 1998286804 EMBASE , WO 99/46300 (IDS reference) and U.S. Patent No. 6,558,936 B1.

WO 98/34630 teaches use of a gastrointestinal lipase inhibitor in oral medicaments for treating type II diabetes mellitus and for the control of obesity and hyperlipidemia.

WO 98/34630 does not teach medicaments comprising an antibody, or fragment thereof, capable of binding specifically to one or more human dietary enzymes, said antibody or fragment thereof comprising a V_HH, nor wherein the antibody or fragment thereof or functional equivalent is capable of specifically binding human pancreatic lipase (HPL).

Aoubala et al teach anti-HPL mAbs that inhibit the lipolytic activity of HPL.

STN Accession Number: 1998286804 EMBASE teaches that inhibition of pancreatic lipase offers the opportunity to intensify the weight reducing effect of diet, and that obesity increases risk of type II diabetes mellitus.

WO 99/46300 teaches that V_HHs are more stable against destabilizing physical and/or chemical conditions, including under pasteurization conditions, than traditional antibodies and that it is therefore advantageous to use them in food products. WO 99/46300 teaches food products include ice cream, oils, margarines, dressings, drinks and meals. WO 99/46300 teaches that V_HHs have superior stability, specificity and affinity as compared to mouse mAbs, characteristics that make them excellent candidates for use in existing and novel applications. WO 99/46300 teaches methods of making V_HHs.

U.S. Patent No. 6,558,936 B1 discloses use of antagonists, including antibodies in therapeutic pharmaceutical compositions to inhibit the activity of a lipase protein. U.S. Patent No. 6,558,936 B1 further discloses that dietary lipids are taken up primarily by hydrolysis of fatty acyl moieties from their corresponding polyol moiety and this reaction is catalyzed by lipases, followed by diffusion across the gut wall (especially column 1 at lines 16-42). U.S. Patent No. 6,558,936 B1 discloses that antibodies to the said lipase protein are useful for treating hyperlipidemia, atherosclerosis, diabetes and obesity (especially column 3 at lines 45-64, column 48 at lines 42-69 and columns 49 and 50).

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have used a V_HH version as taught by WO 99/46300 of an inhibiting anti-HPL antibody such as that taught by Aoubala et al in the oral pharmaceutical composition taught by WO 98/34630 to inhibit pancreatic lipase as taught by WO 98/34630, STN Accession Number: 1998286804 EMBASE and by U.S. Patent No. 6,558,936 B1 for another pancreatic lipase.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat obesity and/or diabetes mellitus type II as taught by WO 98/34630 and by STN Accession Number: 1998286804 EMBASE using a more stable version of the neutralizing anti-HPL mAbs taught by Aoubala et al such as the V_HHs taught by WO 99/46300 since WO 99/46300 teaches the advantage of using them in food products. With regard to the inclusion of claim 10 in this rejection, the combined invention is a pharmaceutical product since it is being administered to a subject in vivo.

14. Claims 1-3, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,558,936 B1 in view of Aoubala et al (J. Biol. Chem. 8: 3932-3937, 1995, IDS reference) and WO 99/46300 (IDS reference).

U.S. Patent No. 6,558,936 B1 discloses use of antagonists, including antibodies in therapeutic pharmaceutical compositions to inhibit the activity of a lipase protein. U.S. Patent No. 6,558,936 B1 further discloses that dietary lipids are taken up primarily by hydrolysis of fatty acyl moieties from their corresponding polyol moiety and this reaction is catalyzed by lipases, followed by diffusion across the gut wall (especially column 1 at lines 16-42). U.S. Patent No. 6,558,936 B1 discloses that antibodies to the said lipase protein are useful for treating

hyperlipidemia, atherosclerosis, diabetes and obesity (especially column 3 at lines 45-64, column 48 at lines 42-69 and columns 49 and 50).

U.S. Patent No. 6,558,936 B1 does not disclose a pharmaceutical or food composition comprising an antibody, or fragment thereof, capable of binding specifically to one or more human dietary enzymes, said antibody or fragment thereof comprising a V_HH, nor wherein the antibody or fragment thereof or functional equivalent is capable of specifically binding human pancreatic lipase (HPL).

Aoubala et al teach anti-HPL mAbs that inhibit the lipolytic activity of HPL.

WO 99/46300 teaches that V_HHs are more stable against destabilizing physical and/or chemical conditions, including under pasteurization conditions, than traditional antibodies and that it is therefore advantageous to use them in food products. WO 99/46300 teaches food products include ice cream, oils, margarines, dressings, drinks and meals. WO 99/46300 teaches that V_HHs have superior stability, specificity and affinity as compared to mouse mAbs, characteristics that make them excellent candidates for use in existing and novel applications. WO 99/46300 teaches methods of making V_HHs.

It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to have used a V_HH version as taught by WO 99/46300 of an inhibiting anti-HPL antibody such as that taught by Aoubala et al in the pharmaceutical composition disclosed by U.S. Patent No. 6,558,936 B1 to inhibit pancreatic lipase as disclosed by U.S. Patent No. 6,558,936 B1 for another pancreatic lipase.

One of ordinary skill in the art at the time the invention was made would have been motivated to do this in order to treat obesity and/or diabetes mellitus type II as taught by U.S. Patent No. 6,558,936 B1 using a more stable version of the neutralizing anti-HPL mAbs taught by Aoubala et al such as the V_HHs taught by WO 99/46300 since WO 99/46300 teaches the advantage of using them include higher stability and affinity, particularly under destabilizing conditions. With regard to the inclusion of claim 9 in this rejection, WO 99/46300 teaches the advantage of using V_HHs in food preparations, and since U.S. Patent No. 6,558,936 B1 discloses the first site of lipase action is in the lumen of the gut, it would have been obvious to include the antibody in an oral pharmaceutical preparation or a food product such as those taught by WO 99/46300 for use with other V_HHs.

15.The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware of in the specification.

16. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Marianne DiBrino whose telephone number is 571-272-0842. The Examiner can normally be reached on Monday, Wednesday and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Christina Y. Chan, can be reached on 571-272-0841. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marianne DiBrino, Ph.D.
Patent Examiner
Group 1640
Technology Center 1600
November 3, 2004

CHRISTINA CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600